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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,805	09/11/2003	Zakar Raffi Hachikian	ITW 0006 IA/41038.9/14350	5226
51635 7590 05/17/2007 DINSMORE & SHOHL LLP ONE DAYTON CENTRE, ONE SOUTH MAIN STREET SUITE 1300 DAYTON, OH 45402-2023			EXAMINER FEELY, MICHAEL J	
			ART UNIT 1712	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/659,805

Applicant(s)

HACHIKIAN, ZAKAR RAFFI

Examiner

Michael J. Feely

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-15, 20, 22, 24-29, 34-39, 44-48, 51 and 52 is/are rejected.
- 7) ☒ Claim(s) 6-8, 16-19, 21, 23, 30-33, 40-43, 49, 50, 53 and 54 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Pending Claims

Claims 1-54 are pending.

Response to Amendment

1. The rejection of claims 1-54 under 35 U.S.C. 112, second paragraph, has been overcome by amendment. The "plasticizer/accelerator" refers to a material that *acts as both* a plasticizer and an accelerator.
2. The rejection of claims 1, 2, 4, 9, 12, 20, 22, 24-26, 28, 34, 37, 49, 50, 53, and 54, under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gordon (US Pat. No. 6,645,341) *has been overcome by amendment.*
3. The rejection of claims 3, 10, 27, 35, 44, and 45 under 35 U.S.C. 103(a) as being unpatentable over Gordon (US Pat. No. 6,645,341) *has been overcome by amendment.*
4. The rejection of claims 47, 48, 51, and 52 under 35 U.S.C. 103(a) as being unpatentable over Gordon (US Pat. No. 6,645,341) in view of Cunliffe et al. (US Pat. No. 4,107,142) *has been overcome by amendment.*
5. The rejection of claims 5, 14, and 29 under 35 U.S.C. 103(a) as being unpatentable over Gordon (US Pat. No. 6,645,341) in view of Hermansen et al. (US Pat. No. 6,723,803) *has been overcome by amendment.*

Response to Arguments

6. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

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The rejection over Gordon has been overcome by amendment because they do not appear to use a material that functions as both a plasticizer and an accelerator. They use a phenolic accelerator (*see column 5, lines 1-5*); however, the methyl chains in this phenol accelerator appear to lack proper chain length to impart a plasticizing effect.

Regardless, it should be noted that Applicant's argument with respect to the flexibilized epoxy resin is not persuasive. Applicant argues that Gordon does not teach an internally flexibilized epoxy resin. Specifically, Applicant argues that epoxy functional butadiene acrylonitrile copolymers are not internally flexibilized epoxy resins. Applicant also argues that these materials are properly classified as reactive liquid polymers.

The epoxy-functional butadiene acrylonitrile copolymers may be classified as *reactive liquid polymers*, but they also appear to reasonably fall under the category and scope of internally flexibilized epoxy resin. The Examiner's reasonable interpretation of *internally flexibilized epoxy resin* is a material featuring flexible segments in the polymer backbone, along with pendant or terminal epoxy groups. The epoxy-functional butadiene acrylonitrile copolymers fall within the scope of this term because they have a flexible (elastomeric) backbone with pendant or terminal epoxy groups. Furthermore, it should be noted that the Specification fails to explicitly define *internally flexibilized epoxy resin* in a way that would exclude the materials taught by Gordon.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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8. Claims 1, 2, 4, 9, 12, 13, 20, 22, 24, 25, 26, 28, 34, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helm (US Pat. No. 3,853,812).

Regarding claims 1, 4, 9, 12, 13, 24, 28, 34, 37, and 38, Helm discloses: *(1)* an epoxy adhesive comprising a mixture of epoxy resin (column 1, line 65 through column 2, line 11), including internally flexibilized epoxy resin (column 2, lines 5-7); a mixture of an unmodified or modified aliphatic amine (Abstract) and an *alkylmonophenol* (Abstract; column 2, lines 42-55); wherein the cured epoxy adhesive has a tensile elongation at room temperature of greater than 30% (column 2, lines 47-55; Examples 1, 2, 4, 6, 7);

(24) a process of adhering at least two substrate surfaces to each other comprising: intercalating said composition between said surfaces and allowing the adhesive to cure (Abstract; column 3, lines 37-43)

(9 & 34) wherein said composition is free of nonylphenol (*nonylphenol not a required alkylmonophenol*); *(12 & 37)* further including a thixotropic agent (column 2, line 65 through column 3, line 4: *fillers*); *(13 & 38)* wherein the *alkylmonophenol* is dinonylphenol (Abstract; column 2, lines 42-55); and

(4 & 28) further including a thixotropic agent (column 2, line 65 through column 3, line 4: *fillers*).

It has been found that, "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present – *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

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Helm does not set forth a distinct plasticizer/accelerator, flexibilizer, and accelerator. However, it appears that their *alkylmonophenol* inherently and simultaneously satisfies all of these components. Since Applicant's "plasticizer/accelerator" is exemplified by nonylphenol or dinonylphenol, one skilled in the art would expect Helm's *alkylmonophenol* (including nonylphenol and dinonylphenol) to have the very same capabilities. One skilled in the art would also consider this material "an accelerator" because of its dual plasticizing and accelerating capability. Furthermore, one skilled in the art would also consider this material "a flexibilizer" because Helm discloses that the presence of the *alkylmonophenol* contributes to the softness/flexibility of the hardened composition (*see column 2, lines 47-51*).

Helm discloses that his composition can be provided in multiple components (*see column 3, lines 5-9*); however, he does not disclose the distribution of materials, as set forth in the instant claims. It should be noted that multi-component epoxy systems are well recognized in the art, wherein the reactive thermosetting (epoxy) material is kept separate from the reactive hardener. This is done to prolong shelf life of the composition by preventing premature hardening. The distribution of non-reactive auxiliary materials (accelerators, flexibilizers, fillers, etc.) is arbitrary because their presence in either component does not affect the stability and shelf-life of the composition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to distribute the non-reactive materials, as claimed, in the composition of Helm because the distribution of non-reactive auxiliary materials is arbitrary in a multi-component thermosetting composition. The presence of these non-reactive auxiliary materials has no impact on the stability and shelf-life of the composition.

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Regarding claims 2, 20, 22, and 25, Helm fails to explicitly disclose an initial curing time of (2 & 25) less than 3 hours and (20 & 22) about 1.5-2 hours. However, the adhesive of Helm appears to be inherently capable of satisfying these property limitations, given the proper curing conditions, because it satisfies all the chemical/material limitations of the instant invention.

Therefore, the adhesive of Helm would have been inherently capable of having an initial cure time of less than 3 hours or from 1.5-2 hours, given the proper curing conditions, because it satisfies all the chemical/material limitations of the instant invention.

Furthermore, the adhesive of Helm would have inherently satisfied the instantly claimed property limitation of having a tensile elongation at room temperature of greater than 30% and greater than 120% because it satisfies all of the chemical/material limitations of the instant claims. This is also suggested by the working examples (*see: column 2, lines 47-55; Examples 1, 2, 4, 6, 7*).

Regarding claim 26, Helm does not explicitly disclose the process step set forth in 26. However, one of ordinary skill would have provided equal volume amounts of resin and hardener in order to facilitate mixing with ease. Furthermore, one of ordinary skill would have mixed to achieve homogeneity in order to ensure co-reactivity of the two parts.

Therefore, the process step of claim 26 would have been obvious to one of ordinary skill in the art at the time of the invention because equal volume parts facilitate mixing with ease, and mixing to homogeneity ensures co-reactivity of the two parts.

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9. Claims 3, 5, 10, 11, 14, 15, 27, 29, 35, 36, 39, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helm (US Pat. No. 3,853,812) in view of Schuft (US Pat. No. 6,248,204).

Helm discloses that, "Fillers, coloring agents, and auxiliary materials can be added to the epoxy resin and/or the hardening agent of the invention before these are mixed;" however, they fail to further elaborate on suitable *auxiliary materials*. Specifically, they do not disclose the combination of a coupling agent, a filler, and thixotropic agent.

Schuft discloses a toughened two-component epoxy resin adhesive (Abstract). Schuft discloses that all of these materials are recognized in the art as suitable auxiliary materials for epoxy adhesives (*see column 4, line 30 through column 5, line 34*). In light of this, it has been found that the selection of a known material based on its suitability for its intended use supports a *prima facie* obviousness determination.

Furthermore, it should be noted that the all of the material quantities set forth in these claims would have been recognized in the art as result effective variables. Each would have been provided to give a balance of adhesiveness, flexibility, and auxiliary properties, and to ensure proper curing and curing speed.

In light of this, it has been found that, "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation," – *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); and, "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or

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workable ranges of said variable might be characterized as routine experimentation,” – *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a combination of a coupling agent, a filler, and thixotropic agent in the composition of Helm because the teachings of Schuft demonstrate that all of these materials are recognized in the art as suitable auxiliary materials for epoxy adhesives. Furthermore, it would have been obvious to optimize material quantities in order to give a balance of adhesiveness, flexibility, and auxiliary properties, and to ensure proper curing and curing speed.

10. Claims 47, 48, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helm (US Pat. No. 3,853,812) in view of Cunliffe et al. (US Pat. No. 4,107,142).

Regarding claims 47, 48, 51, and 52, Helm fails to explicitly disclose the use of (47 & 51) an internally flexibilized epoxy resin selected from internally flexibilized bisphenol A type epoxy resins and internally flexibilized bisphenol F type epoxy resins; and (48 & 52) a butylated bisphenol A epoxy resin.

Cunliffe et al. disclose epoxide materials suitable for use in flexible adhesives that are prepared by reacting a diene, such as butadiene or isoprene, with a diepoxide, such as DGBA (bisphenol A epoxy). They further disclose, “These products may be cured with conventional epoxide curing agents to give an internally flexibilized adhesive having useful combinations of tensile and shear strengths,” (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a butylated bisphenol A epoxy resin, as taught by Cunliffe et al., in the epoxy

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blend of Helm because Cunliffe et al. disclose that these materials are suitable for use in flexible adhesives and are cured with conventional epoxide curing agents to give an internally flexibilized adhesive having useful combinations of tensile and shear strengths.

Allowable Subject Matter

11. The indicated allowability of claims 11, 13, 15, 36, 38, 39, and 46 is withdrawn, in light of the teaching of Helm.

12. Claims 6-8, 16-19, 21, 23, 30-33, 40-43, 49, 50, 53, and 54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 6, 16, 30, and 40, the combined teachings of the prior art fail to teach or suggest the use of a filler comprising a mixture of limestone filler and white pigment.

Regarding claims 7, 8, 17-19, 31, 32, 41, and 42, the combined teachings of the prior art fail to teach or suggest the hardener component set forth in claims 7, 17, 31, and 41. Claims 8, 18, 19, 32, and 42 are allowable because they are dependent from claims 7, 17, 31, and 41.

Regarding claims 21, 23, 33, and 43, the combined teachings of the prior art fail to teach or suggest: the use of a filler comprising a mixture of limestone filler and white pigment; and the hardener set forth in these claims.

Regarding claims 49, 50, 53, and 54, the combined teachings of the prior art fail to teach or suggest the flexibilizer set forth in claims 49, 50, 53, and 54.

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Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael J. Feely
Primary Examiner
Art Unit 1712

May 11, 2007

**MICHAEL FEELY
PRIMARY EXAMINER**